CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Fresh noodle is a traditional wheat-based food from China and has been popular among Asian nations like Korea, Thailand, Japan, Malaysia and Indonesia. It has been estimated that at least 12 per cent of global wheat production is used for processing Asian noodle product (Li et al., 2011). There are two major types of Asian noodles, which are white salted noodles and yellow alkaline noodles. These two noodles are differ greatly in various aspect such as formulation, production procedures, and sensory attributes (Li et al., 2017). Noodle quality is typically evaluated on the basis of color, surface appearance, texture, taste and cooking loss, with noodle firmness, cohesiveness, tensile strength, and sensory appreciation as the main discriminating factors (Rombouts et al., 2014).

However, the shelf-life of fresh noodle is very short and will increase the wastage in the industry and can be a potential source of food poisonings. There are many studies that have been done to prolong the shelf-life of fresh noodle including the use of various food additives. According to Li et al., (2012), the shelf-life of fresh noodle made from ozone treated wheat flour was largely extended, in relation to microbial growth and darkening rate. The investigation on the effect of water activity lowering agents on the shelf-life of fresh noodle showed that it could be extended for more than 7 times (Li et al., 2011).

Food additives are added to food mainly to affect the flavor, to enhance the taste, and to produce a good appearance. In the late 19^{th} century, many commercialized foods appear and it make the use of food additives increased immensely. The use of traditional additive also been apply in noodle making such as potassium bromate and benzoyl

peroxide which act as dough strengtheners and to give chewy texture to noodles (Ginting et al., 2015). Phosphate salts were added to noodle as additive to impart a bright appearance and smooth texture to the products (Wang et al., 2017).

Glycerol is widely used as formulating aid in food, drug, cosmetic and also in pharmaceutical formulations. It serves in food as a humectant and sweeter which help to preserve foods. It is added in noodle to decrease the water activity content of the noodle. Addition of salt in noodle can enhanced the formed network of noodle dough and impart a pliable mouthfeel to the products (Li et al., 2014). Salt also can inhibit enzyme activities and growth of microorganisms in fresh noodles. For these reasons, it is necessary for salt to be added as additive in fresh noodle.

In this study, the use of glycerol and sodium chloride provide another option on prolonging the shelf-life of fresh noodles will be investigated. Microbial growth, pH, moisture content and sensory characteristics were evaluated to monitor the properties of fresh noodles during the storage time under room temperature. The process parameters mentioned is used in this study due to their potential as spoilage indicators in the fresh noodle after a few days storage time. The same experiment were also applied for commercial noodle from market noodle without additive.

1.2 Motivation

The shelf-life of fresh noodles are very short due to the high water content and improper storage. Due to the aforementioned problems, chemical additives are used to prolong the shelf-life of fresh noodle which is harmful to human health. Hence, the addition of glycerol and sodium chloride in the fresh noodle can prolong its shelf-life of as these additive have been proven to be safe by the FDA.

1.3 Problem Statement

The use of boric acid as additive in fresh noodle products is to control starch gelatinization, enhance colour, texture and flavor. Besides, boric acid is effective against

yeasts, and to a much lesser extent, against moulds and bacteria, they can be used to preserve food products (Pang et al., 2008). Unfortunately, the use of boric acid in food can cause many health problems such as kidney failure, nausea and even death. Besides, based on Huang et al., 2007, the use of chitosan and xylose as preservation in noodle also can prolong the shelf-life of fresh noodle. However, the cost of these preservative is high. Therefore, the use of glycerol and sodium chloride provide the safe and cheapest additive to preserve the noodle.

1.4 Objectives

The aim of this study is to investigate the effects of sodium chloride and glycerol to extend the shelf-life of fresh noodles.

1.5 Scopes of Study

1) The effect of glycerol and sodium chloride at the ratio of 2:4 and 4:2 on the process parameters of pH,MC,TPC of fresh noodles was investigated and compared with the fresh noodles without additive and from the market.
2) The sensory attributes of noodle samples will be performed by 10 panellists using hedonic test and the data will be statistically using SPSS software version 23.